LOGAN SOFT RED WINTER WHEAT

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The development of Logan wheat represents a large step forward in breeding for high yielding, widely adapted varieties. Logan, previously known as TN 1455, has been tested in Ohio yield trials since 1962 and was first tested in statewide drilled plot trials in 1964. The overall performance of Logan is compared with Fulton, Monon, Redcoat, and Reed in Table 1. The name Logan represents a county in west central Ohio.

Origin

Logan is believed to have originated from the cross Vermillion X Lucas. However, it possesses resistance to Race A of Hessian fly, indicating an outcross probably occurred early in its development.

Logan was selected as a single plant in 1959 from an F_5 bulk population. In 1963, a total of 106 heads were selected from an increase block resulting from this single plant. These 106 heads were planted in individual rows and the most uniform were bulked and increased to provide breeder seed of Logan.

Performance

Logan has been tested at 10 locations in Ohio in large drilled plot tests for a period of 3 to 5 years at each location. It has yielded consistently well at all locations (Table 2) and during all years, ranking first in yield in 30 of 44 tests. Yield and other characteristics of Logan

TABLE 1.—Comparative Performance of Logan, Fulton, Monon, Reed, and Redcoat in Drilled Plot Tests in Ohio.

Variety	Yield*	Test Weight*	Days Later Than Monon†	Plant Height†	Straw Strength†‡
	bu./A.	lb./bu.		inches	
Logan	48.7	59.1	7	41.7	4.0
Fulton	44.8	59.3	9	49.1	3.4
Monon	42.9**	59.2**	0	38.0	4.1
Redcoat	44.7	59.6	8	42.7	4.9
Reed	45.3	60.0	8	44.1	4.4

*Average of 44 drilled plot yield tests, 1964-1968.
†Average of 11 tests, 1966-1968.
‡1 = lodged flat to 5 = erect.
**Adjusted average for 44 tests on basis of relative performance in 39 tests.

TABLE 2.—Comparative Performance of Logan, Fulton, Monon, Reed, and Redcoat in Drilled Plot Tests by Location.

Variety		OARDC Wayne Co. 1964-68	OSU Franklin Co. 1964-1967	Mahoning Co. 1965-68	Clark Co. 1965-68	Wood Co. 1965-68	Meigs Co. 1965-68	Brown Co. 1965-68	Licking Co. 1965-67	Allen Co. 1965-67	Erie Co. 1966-68
Logan	bu./A.	51.6	53.3	42.8	49.5	57.4	60.6	46.1	36.2	38.7	55.9
	lb./bu.	58.9	59.3	60.1	59.1	59.3	59.2	58.6	58.4	56.8	59.8
Fulton	bu./A.	50.7	46.1	36.4	45.6	50.9	49.0	41.2	32.8	39.6	50.6
	lb./bu.	60.1	59.8	60.8	60.0	59.4	58.3	58.8	57.7	57.5	59.7
Monon	bu./A.	47.3	44.3	28.2	49.7	51.2	51.7*	35.0*	30.3*	33.0*	48.9*
	lb./bu.	60.5	59.7	59.6	58.4	59.8	58.5*	57.6*	57.3*	58.6*	59.3*
Redcoat	bu./A.	44.3	47.7	35.8	47.6	52.0	52.9	43.6	34.4	33.4	52.5
	lb./bu.	59.8	60.0	59.9	59.6	60.4	59.1	59.2	58.4	57.9	60.1
Reed	bu./A.	48.2	46.5	40.2	43.2	52.0	56.3	40.0	34.6	37.2	53.5
	lb./bu.	60.8	60.5	61.1	60.2	60.3	60.0	59.9	59.1	58.0	60.1

*Not planted in 1966. Adjusted average on basis of relative performance in remaining years.

compared with several other varieties grown in three regions of the state are summarized in Table 3.

Logan was also tested in the Eastern Uniform Soft Wheat Nursery at 21 locations in the eastern United States and Canada in 1966 and at 19 locations in 1967. It ranked 7th among 28 entries in yield in 1966 and 10th in 1967.

The test weight of Logan is classed as medium. It is usually close to the test weight of Monon and Fulton and below that of Redcoat and Reed.

Straw strength of Logan is superior to that of Fulton, approximately equal to that of Monon, but below that of Reed and Redcoat.

Logan has excellent winter hardiness and exceeds all soft wheat varieties currently grown in Ohio except Vermillion, with which it is approximately equal.

Characteristics

Logan is considered moderately short in height and moderately early in maturity. It is shorter and earlier than Fulton, Redcoat, and Reed but taller and later than Monon, Riley 67, and Benhur. Logan has white chaff and yellow straw. The spike is awnless with small tip awns and is erect to inclined at maturity.

Insect and Disease Resistance

Logan is resistant to Race A of Hessian fly, which is one of the two most prevalent races in Ohio. In this respect, Logan is similar to Monon, Redcoat, Reed, Riley 67, and Arthur varieties.

Logan has moderately good resistance to the currently predominant races of leaf rust and has shown very little loose smut from natural infection. Logan is susceptible to the currently prevalent races of stem rust and to powdery mildew. It appears to be highly resistant to a suspected new virus noted for the first time in 1967 and again in 1968 which severely affected Redcoat, Benhur, and Riley 67 varieties.

Milling and Baking Qualities

Milling and baking qualities of Logan have been studied at the USDA Soft Wheat Quality Laboratory at Wooster, Ohio, for the past 4 years. The results indicate no important deviation in the quality of Logan from currently grown soft red winter wheat varieties. This uniformity of quality among varieties is very desirable to the milling and baking industries.

Availability

Foundation generation seed of Logan was distributed to growers of registered seed in the fall of 1968. Certified generation seed will be available for planting in the fall of 1970.

TABLE 3.—Comparative Performance in Drilled Plot Trials in Ohio (2-year average, 1967-1968).

Variety	Yield bu./A.	Test Wt. lb./bu.	Pl. Ht. in.	Lodging %	Date Headed
		Wayne Co. (OARDC)			
Logan	50.8	58.6	42	0	6-4
Benhur	33.0	58.8	36	0	5-29
Fulton	51.7	60.6	50	5	6-7
Monon	48.0	59.4	38	2	5-29
Redcoat	40.0	60.2	42	0	6-5
Reed	46.9	61.4	44	0	6-6
Riley 67	39.7	58.4	38	1	6-2
		Clark Co.			
Logan	50.4	58.2	43	25	6-4
Benhur	49.8	58.4	37	1	5-26
Fulton	49.0	59.7	50	6	6-5
Monon	54.6	57.2	40	9	5-26
Redcoat	52.0	59.2	40	3	6-3
Reed	44.0	59.9	43	14	6-4
Riley 67	44.2	56.6	39	30	5-28
		Brown Co.			
Logan	43.1	57.9	44	2	5-25
Benhur	30.7	59.2	38	2	5-16
Fulton	40.0	58.8	50	2	5-26
Monon	32.6	57.2	38	4	5-15
Redcoat	43.0	59.0	46	2	5-25
Reed	39.9	59.8	46	3	5-25
Riley 67	31.5	57.8	38	3	5-18